AMENDMENTS TO THE CLAIMS

Claims 1-27 (Cancelled)

Claim 28 (Currently Amended) An optical information recording method comprising[[,]]:

irradiating an optical information recording medium with a laser beam[[,]];

forming at least one of marks and ~~or~~ spaces to vary ~~so that the~~ optical characteristics of a recording film of the optical information recording medium ~~are varied,~~;

forming the marks by at least one of recording pulses ~~or a recording pulse train~~ in which ~~the~~ a power of the laser beam is switched between a plurality of power levels including at least a recording power and an erasure power, and recording a recording pulse train in which the power of the laser beam is switched between the plurality of power levels, ~~and~~; and

recording information to the optical information recording medium at two different linear velocities,

wherein the recording power is controlled so as to satisfy (Pp1/Ppth1) < (Pp2/Ppth2), where (i) Ppth1 is ~~the~~ a threshold value of the recording power at which ~~the~~ a quality of a reproduction signal drops under a specific value, when a test signal is recorded at a first linear velocity v1, with the erasure power fixed and the recording power varied, (ii) Ppth2 is the threshold value of the recording power at which the quality of the reproduction signal drops under a specific value, when the test signal is recorded at a second linear velocity v2 that is higher than the first linear velocity v1, with the erasure power fixed and the recording power varied, (iii) Pp1 is the recording power, when the information is recorded at the first linear velocity v1, and (iv) Pp2 is the recording power, when the information is recorded at the second linear velocity v2.

Claim 29 (Currently Amended) The optical information recording method according to Claim 28, wherein ~~the~~ a criterion for the quality of the reproduction signal is ~~the~~ a jitter of the reproduction signal.

Claim 30 (Currently Amended) The optical information recording method according to Claim 28, wherein ~~the~~ a criterion for the quality of the reproduction signal is a value based on ~~the~~ an error rate of the reproduction signal.

Claim 31 (Currently Amended) The optical information recording method according to Claim 28, wherein ~~the~~ a criterion for the quality of the reproduction signal is a value based on ~~the~~ a degree of modulation of the reproduction signal.

Claim 32 (Currently Amended) An optical information recording method comprising[[,]]:

irradiating an optical information recording medium with a laser beam[[,]];

forming at least one of marks and ~~or~~ spaces to vary ~~so that the~~ optical characteristics of a recording film of the optical information recording medium ~~are varied,~~;

forming the marks by at least one of recording pulses ~~or a recording pulse train~~ in which ~~the~~ a power of the laser beam is switched between a plurality of power levels including at least a recording power and an erasure power, and recording a recording pulse train in which the power of the laser beam is switched between the plurality of power levels~~, and~~; and

recording information to the optical information recording medium at two different linear velocities,

wherein the recording power is controlled so as to satisfy (Pp1/Ppth1) < (Pp2/Ppth2), where (i) Ppth1 is the a threshold value of the recording power at which the a quality of a reproduction signal drops under a specific value, when a test signal is recorded at a first linear velocity v1, with the erasure power and the recording power varied such that the a ratio between the erasure power and the recording power these powers is constant, (ii) Ppth2 is the a threshold value of the recording power at which the quality of the reproduction signal drops under a specific value, when the test signal is recorded at a second linear velocity v2 that is higher than the first linear velocity v1, with the erasure power and the recording power varied such that the ratio between the erasure power and the recording power these powers is constant, (iii) Pp1 is the recording power, when the information is recorded at the first linear velocity v1, and (iv) Pp2 is the recording power, when the information is recorded at the second linear velocity v2.

Claim 33 (Currently Amended) An optical information recording method comprising[[,]]:

irradiating an optical information recording medium with a laser beam[[,]];

forming at least one of marks and or spaces to vary so that the optical characteristics of a recording film of the optical information recording medium are varied,;

forming the marks by at least one of recording pulses or a recording pulse train in which the a power of the laser beam is switched between a plurality of power levels including at least a recording power and an erasure power, and recording a recording pulse train in which the power of the laser beam is switched between the plurality of power levels, and; and

recording information to the optical information recording medium at two different linear velocities,

wherein the recording power is controlled so as to satisfy a1 < a2, where (i) a1 is ~~the~~ an asymmetry of ~~the~~ a reproduction signal, when a test signal is recorded at a first linear velocity v1, with the erasure power fixed and the recording power varied, and (ii) a2 is the asymmetry of the reproduction signal, when the test signal is recorded at a second linear velocity v2 that is higher than the first linear velocity v1, with the erasure power fixed and the recording power varied.

Claim 34 (Currently Amended) An optical information recording method comprising[[,]]:

irradiating an optical information recording medium with a laser beam[[,]];

forming at least one of marks and ~~or~~ spaces to vary ~~so that the~~ optical characteristics of a recording film of the optical information recording medium ~~are varied,~~;

forming the marks by at least one of recording pulses ~~or a recording pulse train~~ in which ~~the~~ a power of the laser beam is switched between a plurality of power levels including at least a recording power and an erasure power, and recording a recording pulse train in which the power of the laser beam is switched between the plurality of power levels~~, and~~; and

recording information to the optical information recording medium at two different linear velocities,

wherein the recording power is controlled so as to satisfy a1 < a2, where (i) a1 is ~~the~~ an asymmetry of ~~the~~ a reproduction signal, when a test signal is recorded at a first linear velocity v1, with the erasure power and the recording power varied such that ~~the~~ a ratio between the erasure power and the recording power ~~these powers~~ is constant, and (ii) a2 is the asymmetry of the reproduction signal, when the test signal is recorded at a second linear velocity v2 that is

higher than the first linear velocity v1, with the erasure power and the recording power varied such that the ratio between the erasure power and the recording power ~~these powers~~ is constant.

Claim 35 (Currently Amended) The optical information recording method according to Claim 28, wherein the optical information recording method is performed by a recording system that is a CAV recording system.

Claim 36 (Currently Amended) The optical information recording method according to Claim 28, wherein the recording power is controlled so that Pp is increased according to ~~the~~ an increase in a linear velocity v_x when Pp is the recording power at the linear velocity v, which is a value between the first linear velocity v1 and the second linear velocity v2.

Claim 37 (Previously Presented) The optical information recording method according to Claim 28, wherein the power level between recording pulses is controlled to be different from the erasure power.

Claim 38 (Currently Amended) The optical information recording method according to Claim 28, wherein ~~the~~ a power coefficient between recording pulses at the second linear velocity v2 is controlled to be higher than the power coefficient between recording pulses at the first linear velocity $v1_x$ when the power coefficient between recording pulses is α and $\alpha = (Pbtm - Pb)/(Pp - Pb)$, where Pp is the recording power, Pb is the erasure power, and Pbtm is the power level between recording pulses.

Claim 39 (Currently Amended) The optical information recording method according to Claim 33, wherein the recording power is controlled so that Pp is increased according to ~~the~~ an increase in a linear velocity v_x when Pp is the recording power at the linear velocity v, which is a value between the first linear velocity v1 and the second linear velocity v2.

Claim 40 (Previously Presented) The optical information recording method according to Claim 33, wherein the power level between recording pulses is controlled to be different from the erasure power.

Claim 41 (Currently Amended) The optical information recording method according to Claim 33, wherein ~~the~~ a power coefficient between recording pulses at the second linear velocity v2 is controlled to be higher than the power coefficient between recording pulses at the first linear velocity $v1_x$ when the power coefficient between recording pulses is α and $\alpha = (Pbtm - Pb)/(Pp - Pb)$, where Pp is the recording power, Pb is the erasure power, and Pbtm is the power level between recording pulses.

Claim 42 (Previously Presented) An optical information recording medium with which information is recorded by the method according to Claim 28, wherein information expressing the value of Pp1/Ppth1 and Pp2/Ppth2 is recorded.

Claim 43 (Previously Presented) An optical information recording medium with which information is recorded by the method according to Claim 32, wherein information expressing the value of Pp1/Ppth1 and Pp2/Ppth2 is recorded.

Claim 44 (Previously Presented) An optical information recording medium with which information is recorded by the method according to Claim 28, wherein information expressing the value of Pp1 and Pp2 is recorded.

Claim 45 (Previously Presented) An optical information recording medium with which information is recorded by the method according to Claim 32, wherein information expressing the value of Pp1 and Pp2 is recorded.

Claim 46 (Previously Presented) An optical information recording medium with which information is recorded by the method according to Claim 33, wherein information expressing the value of a1 and a2 is recorded.

Claim 47 (Previously Presented) An optical information recording medium with which information is recorded by the method according to Claim 34, wherein information expressing the value of a1 and a2 is recorded.

Claim 48 (Previously Presented) The optical information recording medium according to Claim 42, wherein the recording film is composed of a phase changing material, and the phase changing material contains germanium and tellurium, and also contains either tin or bismuth.

Claim 49 (Previously Presented) The optical information recording medium according to Claim 44, wherein the recording film is composed of a phase changing material, and the phase changing material contains germanium and tellurium, and also contains either tin or bismuth.

Claim 50 (Previously Presented) The optical information recording medium according to Claim 46, wherein the recording film is composed of a phase changing material, and the phase changing material contains germanium and tellurium, and also contains either tin or bismuth.

Claim 51 (Currently Amended) The optical information recording medium according to Claim 42, having a track divided into a plurality of sectors~~, having~~ and having embossed tracks between the plurality of sectors~~, and~~ the embossed tracks being formed such that ~~the~~ a center of the embossed tracks is shifted from ~~the~~ a center of ~~the~~ recording tracks of the plurality of sectors.

Claim 52 (Currently Amended) The optical information recording medium according to Claim 44, having a track divided into a plurality of sectors~~, having~~ and having embossed tracks between the plurality of sectors~~, and~~ the embossed tracks being formed such that ~~the~~ a center of the embossed tracks is shifted from ~~the~~ a center of ~~the~~ recording tracks of the plurality of sectors.

Claim 53 (Currently Amended) The optical information recording medium according to Claim 46, having a track divided into a plurality of sectors~~, having~~ and having embossed tracks between the plurality of sectors~~, and~~ the embossed tracks being formed such that ~~the~~ a center of the embossed tracks is shifted from ~~the~~ a center of ~~the~~ recording tracks of the plurality of sectors.

Claim 54 (Currently Amended) The optical information recording medium according to Claim 48, having a track divided into a plurality of sectors~~, having~~ and having embossed tracks between the plurality of sectors~~, and~~ the embossed tracks being formed such that ~~the~~ a center of the embossed tracks is shifted from ~~the~~ a center of ~~the~~ recording tracks of the plurality of sectors.

Claim 55 (Currently Amended) An optical information recording apparatus for irradiating an optical information recording medium with a laser beam, forming at least one of marks and ~~or~~ spaces to vary ~~so that the~~ optical characteristics of a recording film of the optical information recording medium ~~are varied~~, forming the marks by at least one of recording pulses ~~or a recording pulse train~~ in which ~~the~~ a power of the laser beam is switched between a plurality of power levels including at least a recording power and an erasure power, and recording a recording pulse train in which the power of the laser beam is switched between the plurality of power levels, and recording information to the optical information recording medium at two different linear velocities, the optical information recording apparatus comprising:

a linear velocity setting circuit for setting two different linear velocities;

a recording pulse generation circuit for generating the at least one of the recording pulses and ~~or~~ the recording pulse train according to the setting result of the linear velocity setting circuit;

a laser drive circuit for irradiating the optical information recording medium with the laser beam at the plurality of power levels based on ~~the basis of~~ the recording pulse train; and

a signal quality detecting circuit for detecting ~~the~~ a quality of a reproduction signal,

wherein the laser drive circuit controls the recording power so as to satisfy (Pp1/Ppth1) < (Pp2/Ppth2), where (i) Ppth1 is ~~the~~ a threshold value of the recording power at which the quality

of [[a]] the reproduction signal drops under a specific value, when a test signal is recorded at a first linear velocity v1, with the erasure power fixed and the recording power varied, (ii) Ppth2 is the threshold value of the recording power at which the quality of the reproduction signal drops under a specific value, when the test signal is recorded at a second linear velocity v2 that is higher than the first linear velocity v1, with the erasure power fixed and the recording power varied, (iii) Pp1 is the recording power, when the information is recorded at the first linear velocity v1, and (iv) Pp2 is the recording power, when the information is recorded at the second linear velocity v2.

Claim 56 (Currently Amended) The optical information recording apparatus according to Claim 55, wherein the signal quality detecting circuit is a jitter detecting circuit that detects jitter in [[a]] the reproduction signal.

Claim 57 (Currently Amended) The optical information recording apparatus according to Claim 55, wherein the signal quality detecting circuit is an error rate detecting circuit that detects ~~the~~ an error rate of [[a]] the reproduction signal.

Claim 58 (Currently Amended) The optical information recording apparatus according to Claim 55, wherein the signal quality detecting circuit is a modulation detecting circuit that detects ~~the~~ a degree of modulation in [[a]] the reproduction signal.

Claim 59 (Currently Amended) An optical information recording apparatus for irradiating an optical information recording medium with a laser beam, forming at least one of marks and ~~or~~

spaces to vary ~~so that the~~ optical characteristics of a recording film of the optical information recording medium ~~are varied~~, forming the marks by at least one of recording pulses ~~or a recording pulse train~~ in which ~~the~~ a power of the laser beam is switched between a plurality of power levels including at least a recording power and an erasure power, and recording a recording pulse train in which the power of the laser beam is switched between the plurality of power levels, and recording information to the optical information recording medium at two different linear velocities, the optical information recording apparatus comprising:

a linear velocity setting circuit for setting two different linear velocities;

a recording pulse generation circuit for generating the at least one of the recording pulses and ~~or~~ the recording pulse train according to the setting result of the linear velocity setting circuit;

a laser drive circuit for irradiating the optical information recording medium with the laser beam at the plurality of power levels based on ~~the basis of~~ the recording pulse train; and

a signal quality detecting circuit for detecting ~~the~~ a quality of a reproduction signal,

wherein the laser drive circuit controls the recording power so as to satisfy (Pp1/Ppth1) < (Pp2/Ppth2), where (i) Ppth1 is ~~the~~ a threshold value of the recording power at which the quality of [[a]] the reproduction signal drops under a specific value, when a test signal is recorded at a first linear velocity v1, with the erasure power and the recording power varied such that ~~the~~ a ratio between the erasure power and the recording power ~~these powers~~ is constant, (ii) Ppth2 is the threshold value of the recording power at which the quality of the reproduction signal drops under a specific value, when the test signal is recorded at a second linear velocity v2 that is higher than the first linear velocity v1, with the erasure power and the recording power varied such that the ratio between the erasure power and the recording power ~~these powers~~ is constant,

(iii) Pp1 is the recording power, when the information is recorded at the first linear velocity v1, and (iv) Pp2 is the recording power, when the information is recorded at the second linear velocity v2.

Claim 60 (Currently Amended) An optical information recording apparatus for irradiating an optical information recording medium with a laser beam, forming at least one of marks and ~~or~~ spaces to vary ~~so that the~~ optical characteristics of a recording film of the optical information recording medium ~~are varied~~, forming the marks by at least one of recording pulses ~~or a recording pulse train~~ in which ~~the~~ a power of the laser beam is switched between a plurality of power levels including at least a recording power and an erasure power, and recording a recording pulse train in which the power of the laser beam is switched between the plurality of power levels, and recording information to the optical information recording medium at two different linear velocities, the optical information recording apparatus comprising:

a linear velocity setting circuit for setting two different linear velocities;

a recording pulse generation circuit for generating the at least one of the recording pulses and ~~or~~ the recording pulse train according to the setting result of the linear velocity setting circuit;

a laser drive circuit for irradiating the optical information recording medium with the laser beam at the plurality of power levels based on ~~the basis of~~ the recording pulse train; and

a signal quality detecting circuit for detecting ~~the~~ a quality of a reproduction signal,

wherein the laser drive circuit controls the recording power so as to satisfy $a1 < a2$, where (i) a1 is ~~the~~ an asymmetry of the reproduction signal, when a test signal is recorded at a first linear velocity v1, with the erasure power fixed and the recording power varied, and (ii) a2 is the

asymmetry of the reproduction signal, when the test signal is recorded at a second linear velocity v2 that is higher than the first linear velocity v1, with the erasure power fixed and the recording power varied.

Claim 61 (Currently Amended) An optical information recording apparatus for irradiating an optical information recording medium with a laser beam, forming at least one of marks and ~~or~~ spaces to vary ~~so that the~~ optical characteristics of a recording film of the optical information recording medium ~~are varied~~, forming the marks by at least one of recording pulses ~~or a recording pulse train~~ in which ~~the~~ a power of the laser beam is switched between a plurality of power levels including at least a recording power and an erasure power, and recording a recording pulse train in which the power of the laser beam is switched between the plurality of power levels, and recording information to the optical information recording medium at two different linear velocities, the optical information recording apparatus comprising:

a linear velocity setting circuit for setting two different linear velocities;

a recording pulse generation circuit for generating the at least one of the recording pulses and ~~or~~ the recording pulse train according to the setting result of the linear velocity setting circuit;

a laser drive circuit for irradiating the optical information recording medium with the laser beam at the plurality of power levels based ~~on the basis of~~ the recording pulse train; and

a signal quality detecting circuit for detecting ~~the~~ a quality of a reproduction signal,

wherein the laser drive circuit controls the recording power so as to satisfy $a1 < a2$, where (i) a1 is ~~the~~ an asymmetry of the reproduction signal, when a test signal is recorded at a first linear velocity v1, with the erasure power and the recording power varied such that ~~the~~ a ratio

between the erasure power and the recording power ~~these powers~~ is constant, and (ii) a2 is the asymmetry of the reproduction signal, when the test signal is recorded at a second linear velocity v2 that is higher than the first linear velocity v1, with the erasure power and the recording power varied such that the ratio between the erasure power and the recording power ~~these powers~~ is constant.

Claim 62 (Currently Amended) The optical information recording apparatus according to Claim 55, wherein the optical information recording apparatus is included in a recording system that is a CAV recording system.

Claim 63 (Currently Amended) The optical information recording apparatus according to Claim 55, wherein the recording power is controlled so that Pp is increased according to ~~the~~ an increase in a linear velocity v_x when Pp is the recording power at the linear velocity v, which is a value between the first linear velocity v1 and the second linear velocity v2.

Claim 64 (Currently Amended) The optical information recording apparatus according to Claim 60, wherein the recording power is controlled so that Pp is increased according to ~~the~~ an increase in a linear velocity v_x when Pp is the recording power at the linear velocity v, which is a value between the first linear velocity v1 and the second linear velocity v2.

Claim 65 (Previously Presented) The optical information recording apparatus according to Claim 55, wherein the power level between recording pulses is controlled to be different from the erasure power.

Claim 66 (Previously Presented) The optical information recording apparatus according to Claim 60, wherein the power level between recording pulses is controlled to be different from the erasure power.

Claim 67 (Currently Amended) The optical information recording apparatus according to Claim 55, wherein ~~the~~ a power coefficient between recording pulses at the second linear velocity v2 is controlled to be higher than the power coefficient between recording pulses at the first linear velocity $v1_1$ when the power coefficient between recording pulses is α and $\alpha = (Pbtm - Pb)/(Pp - Pb)$, where Pp is the recording power, Pb is the erasure power, and Pbtm is the power level between recording pulses.

Claim 68 (Currently Amended) The optical information recording apparatus according to Claim 60, wherein ~~the~~ a power coefficient between recording pulses at the second linear velocity v2 is controlled to be higher than the power coefficient between recording pulses at the first linear velocity $v1_1$ when the power coefficient between recording pulses is α and $\alpha = (Pbtm - Pb)/(Pp - Pb)$, where Pp is the recording power, Pb is the erasure power, and Pbtm is the power level between recording pulses.